Workshop on HF Radars for Coastal Oceanography

Hans C. Graber
RSMAS - Applied Marine Physics
University of Miami
4600 Rickenbacker Causeway
Miami, FL 33149-1098, USA
phone: 305-361-4935 fax: 305-361-4701 email: hgraber@rsmas.miami.edu

Jeffrey D. Paduan
Code OC/Pd
Naval Postgraduate School
Monterey, CA 93943
phone: 831-656-3350 fax: 831-656-2712 email: paduan@oc.nps.navy.mil

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LONG-TERM GOAL

To begin an annual workshop series on HF radars that promotes and facilitates interactions among HF radar engineers, scientists and users and publishes new developments with the goal of making HF radars an acceptable and reliable tool for oceanographic applications.

SCIENTIFIC OBJECTIVES

The workshop would provide a forum where participants from around the world could present results and discuss issues concerning HF radars. The workshop goals are:

1. To facilitate communications and exchange ideas and information on radar technology and applications.
2. To build and foster a strong users group.
3. To optimize radar technology jointly with scientists and engineers.
4. To develop algorithms and standards for the analysis of currents, winds and waves as well as other parameters (e.g. bathymetry, salinity).
5. To improve error estimates for modellers.
6. To better understand the physics of the underlying scattering process.

APPROACH

We will organize a workshop series which would have an annual meeting hosted by one of the international participants. The first workshop would begin with an overview of activities with HF radars from the various countries such as: USA, United Kingdom, Germany, Australia, Canada, Japan, France, Italy, Taiwan and India. Invited individuals will make these presentations. Our plan is to divide the workshop into four major themes:

I. INSTRUMENTATION/TECHNOLOGY

II. PHYSICS

III. ALGORITHMS

IV. APPLICATIONS

The four themes are chosen to stimulate discussions in these areas, but also to expose the cross-linkages among them. Some of the issues that should be covered by these themes in the workshops over the next years include:

I. INSTRUMENTATION/TECHNOLOGY

Transmitter design, antenna design, computers and data acquisition system

II. PHYSICS

Radar cross-section, EM propagation and attenuation, noise, surface waves, error statistics

III. ALGORITHMS

Transmitter waveform , antenna pointing, direction finding, Doppler currents

IV. APPLICATIONS

Sub-tidal current maps, tidal currents, wind-driven currents, trajectory analyses, marine forecasts, interannual signals, wave forecasts, modeling

WORK COMPLETED

The 1st International Radio Oceanography Workshop has been organzied and will be held on April 9-12, 2001 at Timberline Lodge, Oregon.

A website, under construction, will be available shortly to inform participants on the workshop logistics, program and publication details.

RESULTS

None yet.

IMPACT/APPLICATION

The workshop series would be a great promotion of HF radar technology. The contributors to these workshops would speed up the process in refining algorithms and determining standards. Furthermore,

the publication of the workshop results will expand the awareness of the oceanographic community and interactions with coastal modeling community. A greater interest in HF radars will lead to more routine scientific and operational deployments of HF radar systems and the use of its data as common as data from ADCPs or current meters.

TRANSITIONS

None yet.

RELATED PROJECTS

There have been numerous experiments funded by DoD on both east and west coasts using HF radars for different objectives.